

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1, 3-19, 40-44, and 46-48 are pending in the application, with 1 and 11 being the independent claims. Claims 20-39 were previously cancelled without prejudice to or disclaimer of the subject matter therein. Claims 2 and 45 are sought to be canceled without prejudice to or disclaimer of the subject matter therein. Claims 1, 11, 40 and 41 are sought to be amended. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Telephonic Interview

Applicants thank the Examiner for the telephonic interview conducted on December 5, 2006. During the telephonic interview, Applicants' Representative discussed the invention, the claims, and the applied art.

Rejections under 35 U.S.C. § 101

On page 3, paragraph 2, the Examiner rejected claims 1-19 and 40-48 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Claims 2 and 45 have been canceled without prejudice to or disclaimer of the subject matter therein. Thus, the rejection of these claims under 35 U.S.C. § 101 is rendered moot. With respect to claims 1, 3-19, 40-44, and 46-48, Applicants respectfully traverse.

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As currently amended, claim 1 recites:

In a processor, a method for performing computer graphics view volume clipping comparisons to determine whether a vertex is located within a specified view volume, the method comprising:

transforming coordinates representing the vertex into transformed coordinates; and

using a floating point magnitude compare instruction to perform a magnitude comparison between an absolute value of at least two of the transformed coordinates and an absolute value of a corresponding view volume edge, wherein comparison results indicate whether the at least two of the transformed coordinates are within the view volume.

Applicants submit that claim 1 is directed to statutory subject matter under 35 U.S.C. § 101 because this claim provides a useful, concrete, and tangible result. *See AT&T Corp. v. Excel Commc'ns, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999). In *AT&T*, the claim at issue¹ was held to be directed toward statutory subject matter under 35 U.S.C. § 101 because the claim recited an indicator that “represents information about the call recipient’s [long distance carrier], a useful, non-abstract result that facilitates differential billing of long-distance calls made by a [] subscriber.” *See id.* at 1358. In the instant application, claim 1 recites, for example, “comparison results [that] indicate whether the at least two of the transformed coordinates are within the view volume”—a useful, non-abstract result that facilitates rasterization and rendering of pixels on a computer screen. Thus, claim 1 encompasses statutory subject matter under 35 U.S.C. § 101.

¹ The claim at issue in *AT&T* recited:

A method for use in a telecommunications system in which interexchange calls initiated by each subscriber are automatically routed over the facilities of a particular one of a plurality of interexchange carriers associated with that subscriber, said method comprising the steps of:
generating a message record for an interexchange call between an originating subscriber and a terminating subscriber; and
including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers.

AT&T, 172 F.3d at 1354.

Claims 3-10 and 40-44 depend, either directly or indirectly, from claim 1, and are therefore also directed to statutory subject matter. Accordingly, Applicants respectfully request that the rejection of claims 1, 3-10 and 40-44 under 35 U.S.C. § 101 be reconsidered and withdrawn.

Claim 11 is a system claim corresponding to the method recited in claim 1. Accordingly, in addition to its own features, claim 11 is directed to statutory subject matter under 35 U.S.C. § 101 for at least the same reasons as claim 1. Claims 12-19 and 46-48 depend, either directly or indirectly, from claim 11, and are therefore also directed to statutory subject matter. Accordingly, Applicants respectfully request that the rejection of claims 11-19 and 46-48 under 35 U.S.C. § 101 be reconsidered and withdrawn.

Rejections under 35 U.S.C. § 103

Beginning on page 3, paragraph 4, the Examiner rejected claims 1-19 and 40-48 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Koss (U.S. Patent No. 5,720,019; hereinafter “Koss”) in view of Deering (U.S. Patent No. 6,169,554; hereinafter “Deering”), and further in view of Heinrich (“MIPS R4000 Microprocessor User's Manual”; hereinafter “Heinrich”). As set forth above, the rejection of claims 2 and 45 is rendered moot because these claims have been canceled without prejudice to or disclaimer of the subject matter therein. With respect to claims 1, 3-19, 40-44, and 46-48, Applicants respectfully traverse.

As set forth above, currently amended claim 1 recites:

In a processor, a method for performing computer graphics view volume clipping comparisons to determine whether a vertex is located within a specified view volume, the method comprising:

transforming coordinates representing the vertex into transformed coordinates; and

using a floating point magnitude compare instruction to perform a magnitude comparison between an absolute value of at least two of the transformed coordinates and an absolute value of a corresponding view volume edge, wherein comparison results indicate whether the at least two of the transformed coordinates are within the view volume.

Koss does not teach or fairly suggest each and every feature of claim 1. As indicated in the Office Action, Koss does not teach or fairly suggest a magnitude comparison of absolute values. (*See* the Office Action at page 5.) Furthermore, as discussed with the Examiner during the telephonic interview on December 5, 2006, Koss teaches a clipping process that must be repeated for each coordinate of a vertex. (*See* Koss col. 12, lns. 11-16.) Thus, Koss does not teach or fairly suggest, for example, “using a floating point magnitude compare instruction to perform a magnitude comparison between an absolute value of at least two of the transformed coordinates and an absolute value of a corresponding view volume edge, wherein comparison results indicate whether the at least two of the transformed coordinates are within the view volume,” as recited in claim 1.

The deficiencies of Koss with respect to claim 1 are not remedied by the teachings of Deering or Heinrich. According to Deering, a clip testing unit 418 includes a clip compare unit 610. (*See* Deering col. 15, lns. 14-21; FIG. 8.) Although Deering teaches that clip compare unit 610 may not take into account the sign value of a coordinate value (*see id.*), Deering does not teach or fairly suggest a comparison between absolute values in the manner recited in claim 1. Specifically, Deering requires

additional logic—*i.e.*, a combinatorial logic block 640—in order to determine “in which direction (positive or negative) the value is to be clipped.” (*See* Deering col. 15, lns. 35-36; FIG. 8.). Furthermore, Deering teaches that “only one coordinate of a single vertex is clip tested at a time.” (Deering col. 16, lns. 64-65.) Although Heinrich appears to teach a compare instruction, neither Deering nor Heinrich teach or fairly suggest “using a floating point magnitude compare instruction to perform a magnitude comparison between an absolute value of at least two of the transformed coordinates and an absolute value of a corresponding view volume edge, wherein comparison results indicate whether the at least two of the transformed coordinates are within the view volume,” as recited in claim 1.

Because Koss, Deering, and Heinrich, alone or in combination, do not teach or fairly suggest each and every feature of independent claim 1, this claim is patentable over Koss, Deering, and Heinrich. Dependent claims 3-10 and 40-44 depend, either directly or indirectly, from independent claim 1. Thus, dependent claims 3-10 and 40-44 are patentable over Koss, Deering, and Heinrich for at least the same reasons as independent claim 1, in addition to the respective features of the dependent claims. Accordingly, Applicants respectfully request that this rejection of claims 1, 3-10 and 40-44 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

As currently amended, claim 11 recites:

A system that performs computer graphics view volume clipping comparisons to determine whether a vertex is located within a specified view volume, the system comprising:

means for transforming coordinates representing the vertex into a plurality of transformed coordinates; and

means for executing a floating point magnitude compare instruction to perform a magnitude comparison between an absolute value of at least two of the transformed coordinates and an absolute value of a

corresponding view volume edge, wherein comparison results indicate whether the at least two of the transformed coordinates are within the view volume.

For at least the same reasons as set forth above with respect to independent claim 1, independent claim 11 is patentable over Koss, Deering, and Heinrich. Dependent claims 12-19 and 46-48 depend, either directly or indirectly, from independent claim 11. Thus, dependent claims 12-19 and 46-48 are patentable over Koss, Deering, and Heinrich for at least the same reasons as independent claim 11, in addition to the respective features of the dependent claims. Accordingly, Applicants respectively request that this rejection of claims 11-19 and 46-48 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Beginning on page 9, paragraph 2, the Examiner rejected claims 1 and 11 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Koss in view of Dubey (U.S. Patent No. 6,298,365; hereinafter "Dubey"), and further in view of Heinrich. Based on the following comments, Applicants respectfully traverse.

As set forth above, Koss and Heinrich do not teach or fairly suggest each and every feature of claims 1 and 11. The shortcomings of Koss and Heinrich with respect to these claims are not remedied by the teachings of Dubey. For example, like Deering, Dubey does not teach or fairly suggest a comparison between absolute values in the manner recited in claim 1. Dubey discloses a circuit 160 that implements a bounds comparator function. (*See* Dubey col. 4, lns. 24-27.) According to Dubey, input to circuit 160 must be in

sign-magnitude format, which means their significand (fraction) must be positive magnitude with a sign bit to determine if the floating-point value is positive or negative.

(Dubey col. 4, lns. 38-40.) To handle the signed portions of the inputs, Dubey teaches that circuit 160 includes AND gates 142 and AND gates 144. (*See* Dubey col. 4, ln. 61 - col. 5, ln. 2.) Thus, like Koss and Heinrich, Dubey also does not teach or fairly suggest, for example, “a floating point magnitude compare instruction to perform a magnitude comparison between an absolute value of at least two of the transformed coordinates and an absolute value of a corresponding view volume edge, wherein comparison results indicate whether the at least two of the transformed coordinates are within the view volume,” as recited in claims 1 and 11.

Because Koss, Heinrich, and Dubey, alone or in combination, do not teach or fairly suggest each and every feature of claims 1 and 11, claims 1 and 11 are patentable over Koss, Heinrich, and Dubey. Accordingly, Applicants respectfully request that this rejection of claims 1 and 11 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

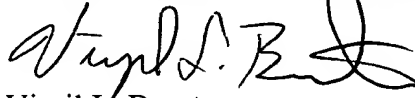
Amdt. dated Dec. 19, 2006 - 15 -
Reply to Office Action of September 19, 2006

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Appl. No. 09/364,786

Prompt and favorable consideration of this Amendment and Reply is respectfully
requested.

Respectfully submitted,

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